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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,720	10/03/2003	Robert C. Lam	01168/DKT00076	6119

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BORGWARNER INC.  
PATENT DEPARTMENT  
3850 HAMLIN ROAD  
AUBURN HILLS, MI 48326-2872

EXAMINER
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SPERTY, ARDEN B

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/678,720

Applicant(s)

LAM, ROBERT C.

Examiner

Arden B. Sperty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 6/06/06.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6-9, 12, 13 and 23-29 is/are pending in the application.  
4a) Of the above claim(s) 23-28 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 6-9, 12, 13 and 29 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **NON-FINAL OFFICE ACTION**

1. Applicant's After Final response, filed 6/06/06, has been entered and carefully considered.

The double patenting rejection in view of Application number 10/678725 is withdrawn. The double patenting rejections in view of Application numbers 10/666090, 10/678599, and Patent numbers 5998307, 6182804, and 6001750 remain, as originally stated in the Non Final Office action dated 8/25/05.

Prosecution is hereby reopened, in order to present the prior art rejections set forth herein. Furthermore, additional double patenting issues have become apparent, as set forth herein.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-9, 12-13, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5858883 to Lam et al (Lam '883), in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication 2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent

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6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The Lam '883 reference teaches an impregnated fibrous base material comprising a primary layer of less fibrillated aramid fibers, synthetic graphite, and at least one filler material, and a secondary layer of carbon particles on at least one surface of the fibrous base material (Abstract).

The reference is silent with respect to the use of carbon *fibers* in the secondary layer. The following patents and publications teach similar two-layer fibrous friction materials, comprising amounts of carbon fibers in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references. Furthermore, the amounts and surface area coverage would have been obvious in view of the references, or optimized by one of ordinary skill in the art.

The Lam '883 reference is silent with respect to the degree of carbonization of the carbon particles. The following patents and publications teach similar friction materials, and also teach

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that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

Regarding claim 7, the Lam '883 reference teaches overlapping CSF values (cols 35-36). Regarding claim 8, fiber length factors into the CSF value, therefore the claimed feature would have been provided by fibers within this CSF range.

Regarding claim 9, the filler of the Lam '883 reference includes diatomaceous earth (col. 37, lines 19-20).

Regarding claims 12 and 13, absent a showing of unexpected results with the claimed proportions, optimal or desired amounts of each component would have been determined by one of ordinary skill in the art, based upon the ultimate intended use of the product and properties desired therein.

Regarding claim 29, the Lam '883 reference is silent with respect to the use of carbon fibers in the primary layer. The Yesnick reference teaches a similar two-layer impregnated fibrous base material, comprising carbon fibers in the primary layer (col. 5, line 15). The

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reference extols the virtues of carbon fibers (col. 6, lines 21-34). It would have been obvious to one of ordinary skill in the art to include carbon fibers in the primary layer, motivated by the advantages set forth by Yesnick. The Lam '883 and Yesnick references are silent with respect to the degree of carbonization of the carbon particles. The Lam '416 reference teaches a similar friction material, wherein partial and/or fully carbonized carbon powders and/or particles are functionally equivalent (col. 9, lines 20-26). Therefore, it would have been obvious to one of ordinary skill to use either partially or fully carbonized particles, as desired.

4. Claims 6-9, 12-13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5856244 to Lam et al (Lam '244), in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication 2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The Lam '244 reference teaches an impregnated fibrous base material comprising a primary layer of less fibrillated aramid fibers, synthetic graphite, and at least one filler material, and a secondary layer of carbon particles on at least one surface of the fibrous base material (Abstract). The secondary layer comprises about 0.2 to 20% carbon particles, a range which overlaps the claimed range (col. 4, lines 15-18). The carbon particles of the secondary layer cover approximately 3-80% of the primary layer surface area (col. 4, lines 27-30). The aramid

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fibers of the primary layer are less fibrillated, with a CSF of 300-700 and length of about 3 to about 6 mm (col. 4, lines 44-46).

The reference is silent with respect to the use of carbon *fibers* in the secondary layer. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon fibers in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

The Lam '244 reference is silent with respect to the degree of carbonization of the carbon particles. The following patent and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

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It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

Regarding claim 9, the Lam '244 reference teaches diatomaceous earth as a filler material (col. 12, lines 7-29).

Regarding claims 12 and 13, absent a showing of unexpected results with the claimed proportions, optimal or desired amounts of each component would have been determined by one of ordinary skill in the art, based upon the ultimate intended use of the product and properties desired therein.

Regarding claim 29, the Lam '244 reference is silent with respect to the use of carbon fibers in the primary layer. The Yesnick reference teaches a similar two-layer impregnated fibrous base material, comprising carbon fibers in the primary layer (col. 5, line 15). The reference extols the virtues of carbon fibers (col. 6, lines 21-34). It would have been obvious to one of ordinary skill in the art to include carbon fibers in the primary layer, motivated by the advantages set forth by Yesnick. The Lam '244 and Yesnick references are silent with respect to the degree of carbonization of the carbon particles. The above referenced patents and publications teach similar friction materials, wherein partial and/or fully carbonized carbon powders and/or particles are functionally equivalent. Therefore, it would have been obvious to one of ordinary skill to use either partially or fully carbonized particles, as desired.

***Double Patenting***



5. Claims 6-9, 12-13, and 29 remain provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/666090. Although the conflicting claims are not identical, they are not patentably distinct from each other because the amount of partially carbonized carbon fibers in the secondary layer of the 10/666090 Application would have been easily determined by one of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 6-9, 12-13 and 29 remain provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/678599. Although the conflicting claims are not identical, they are not patentably distinct from each other because the amount of partially carbonized carbon fibers in the secondary layer of the 10/678599 Application would have been easily determined by one of ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 6-9, 12-13 and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 5998307 in view of

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US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication 2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The 5998307 patent includes a secondary layer of carbon particles. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon fibers in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

The following patent and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

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It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

8. Claims 6-9, 12-13 and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 and 20-33 of U.S. Patent No. 6182804 in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The 6182804 patent teaches a secondary layer comprising an amount of carbon fibers. The following patent and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

It therefore would have been obvious to substitute carbon fibers for carbon particles, based on their known functional equivalency in the art.

9. Claims 6-9, 12-13, and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6001750 in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication

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2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The issued claims include a secondary layer of carbon particles, in the same amount and surface area coverage. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon fibers in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

The following patents and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

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It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

10. Claims 6-9, 12-13, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/678598 in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication 2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The conflicting claims include a secondary layer comprising carbonaceous material in a preferred amount. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon *fibers* in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

The following patents and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

This is a provisional obviousness-type double patenting rejection.

11. Claims 6-9, 12-13, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of copending Application No. 10/916328 in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication 2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong, and further in view of US Patent 6630416 to Lam, US Publication 2004/0043193 to Chen et al, US Patent 6875711 to Chen et al, US Publication 2004/0081813 to Dong, and/or US Publication 2005/0064778 to Lam et al.

The conflicting claims include a secondary layer comprising carbon particles in a preferred amount. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon fibers in the secondary layer:

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US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

The following patents and publications teach similar friction materials, and also teach that partially and fully carbonized carbon powders, particles, or fibers are functionally equivalent:

US Patent 6630416 to Lam (col. 9, lines 20-26);

US Publication 2004/0043193 to Chen et al (paragraph 0064);

US Patent 6875711 to Chen et al (col. 8, lines 18-25);

US Publication 2004/0081813 to Dong (paragraph 0014);

US Publication 2005/0064778 to Lam et al (paragraph 0093).

It therefore would have been obvious to substitute partially carbonized carbon fibers for carbon particles, based on their known functional equivalency in the art.

This is a provisional obviousness-type double patenting rejection.

12. Claims 6-9, 12-13 and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6630416 in view of US Patent 6194059 to Yesnick, US Patent 6182804 to Lam (Lam '804), US Publication

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2004/0033341 to Lam (Lam '341), US Publication 2005/0191477 to Dong, and/or US Publication 2004/0081813 to Dong.

The issued claims encompass a secondary layer comprising partially carbonized carbon (claim 5) in a particular amount. The following patents and publications teach similar two-layer fibrous friction materials, comprising carbon *fibers* in the secondary layer:

US Patent 6194059 to Yesnick (col. 7, lines 6-17);

US Patent 6182804 to Lam (col. 5, lines 59+);

US Publication 2004/0033341 to Lam (paragraphs 0052 and 0053);

US Publication 2005/0191477 to Dong (paragraphs 0064 and 0096);

US Publication 2004/0081813 to Dong (paragraphs 0064 and 0096).

It would have been obvious to one of ordinary skill in the art to employ carbon fibers for the advantages taught by any of the listed references.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional prior art of record includes: US Patents 6875711, 6001750, 5775468, 5965658.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arden B. Sperty whose telephone number is (571)272-1543. The examiner can normally be reached on M-Th, 08:00-16:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

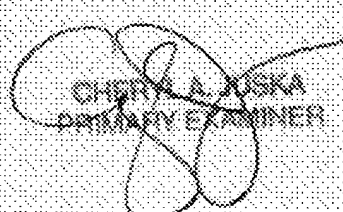


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Arden B. Sperty  
Examiner  
Art Unit 1771



CHERYL A. HUSKA  
PRIMARY EXAMINER

July 3, 2006